

and olive, edged distally with blackish at costa and inner margin, very faintly with grey between; cell-spot blackish, ringed with pale olive; a curved median dark shade from costa beyond this, as in *latrata*; postmedian line starting from a pale spot at costa beyond four-fifths, sharply angled at  $SC^5$ , then rather oblique inwards, nearly straight, gently excurved in submedian area, olive, weak, but emphasized by whitish dots on veins and by proximal dark shading at costa and inner margin; fringe mostly redder, but olive and pale-tipped in the sinus between  $M^1$  and  $M^2$ . Hind wing similarly coloured, the brown tint predominating proximally, the pinkish distally; costa as far as  $SC^2$  and termen from apex to across  $R^1$  mostly white; a faint median and a moderately distinct postmedian line formed nearly as in *latrata*, but the latter darkened on the veins and accentuated by whitish vein-dots, slightly incurved in submedian area; some obscure subterminal clouding; fringe mostly reddish. Underside very like that of a strongly marked *angulosa*, Cram. (*caninata*, Guen.), the postmedian olive line rather better defined and more regular, the median shade of hind wing rather slighter, fringe without dark dots.

San Antonio, W. Colombia, 5800 feet, December 1907 (*M. G. Palmer*). Type and cotype in coll. L. B. Prout. M. Dognin possesses an example from Loja, Ecuador, which Mr. Druce many years ago, by mistake, determined for him as *succedens*, Walk. (a pure synonym of *latrata*). The hind wing beneath is particularly unlike that of *latrata*.

LXXVIII.—*Paraceratherium bugtiense*, a new Genus of Rhinocerotidæ from the Bugti Hills of Baluchistan.—*Preliminary Notice*. By C. FORSTER-COOPER, M.A., University Demonstrator in Comparative Morphology, Cambridge.

[Plate X.]

THE type species of this new genus is found in the Upper Oligocene deposits of the Bugti Hills in Baluchistan. The material is somewhat fragmentary, though enough has been obtained to warrant the formation of a new genus for its reception, the generic characters relied upon being the very unusual position and shape of the two lower incisors, which

in these respects differ from those of any other described form of rhinoceros.

The specific name *bugtiense* is given for the reason that the specimen is referred, provisionally at all events, to the upper teeth described by Pilgrim as *Aceratherium bugtiense* (Rec. Geol. Surv. India, vol. xl. part 1, 1910).

The material on which this new genus is founded consists of a moderately complete lower jaw with all the teeth present on each side (Pl. X.). Unfortunately the jaw belonged to an exceedingly old individual, and the premolars and molars are all much worn, so much so that in the second and third molars the plane of wear has reached a level lower than the cingulum. Enough is present, however, to show that the teeth are of the Rhinocerotid type in general character and may be compared with those of *Aceratherium*.

The general measurements of the jaw are:—

	cm.
Extreme length from tip of procumbent incisor to back of ramus .....	72·0
Approximate height of ramus .....	31·0
Transverse width of condyle .....	14·0
Length of premolar-molar series .....	32·5

The dental formula is:—I.  $\frac{?}{?}$ , C.  $\frac{?}{0}$ , Pm.  $\frac{?}{3}$ , M.  $\frac{?}{3}$ .

The measurements of the teeth are:—

	cm.
Incisor, length of enamel crown .....	5·7
„ width at base .....	3·4
	Length. Breadth.
	cm. cm.
Pm. 2 .....	2·9 1·8
Pm. 3 .....	4·8 3·7
Pm. 4 .....	5·7 4·5
M. 1 .....	5·8 4·5
M. 2 .....	7·0 4·5
M. 3 .....	7·9 4·9

With the exception of the first the premolars are large, and the fourth is practically as large as the first molar. The front premolar shows very little sign of wear, only the enamel at the extreme top being worn away.

Owing to the position of the incisors, unique in this order, the lower border and front end of the upper part of the ramus show a peculiar outline. Beneath the molars the contour is flat (in the actual specimen it is rather concave, but this seems to be due to crushing). At the level of the hind end

of the last premolar the ramus shows its greatest depth, and then begins to slope upwards to a point some  $4\frac{1}{2}$  cm. beyond the front border of the mental foramen (which underlies the front premolar); here the ramus turns downwards a little and contains the stout root of the incisor.

On the upper surface in front of the leading premolar the border of the ramus forms a sharp edge which runs forwards for about  $4\frac{1}{2}$  cm.; it then swells out a little and turns abruptly down to the incisors.

The symphysis is  $15\frac{1}{2}$  cm. long and reaches to a level exactly at the middle of the last premolar, where the width between the rami, measured from the inside of these teeth, is 10 cm.

The chief peculiarity of the jaw lies in the shape and position of the single stout incisor in each ramus. These teeth lie at the extreme front, closely apposed at their bases and slightly divergent at their tips. The section for about  $3\frac{1}{2}$  cm. from the tip is roughly circular; on the outer side the surface of the tooth runs back in a straight line, on the inner side and at rather a low level a ridge arises which ends in a swelling apposed to a similar process from the opposite tooth (Pl. X. fig. 2). The two incisors are closely pressed together at this point and the two edges run back in a straight median line to the symphysis.

It is extraordinary that the incisors show no sign of wear in this specimen, seeing that the other teeth, with the exception of the one premolar, are practically worn down to the socket. It is probable that the specimen was a female, and the occurrence of rather larger incisors showing distinct signs of wear on the inner side of the tip supports this view, which is of some importance in considering the possible association with this species of other bones found in the same locality\*. The great stoutness of the roots of these incisors is noticeable; a separate specimen (fig. 1 a, p. 714) showing signs of wear measures:—

	cm.
From tip of tooth to end of the enamel outside . . . .	5·9
Greatest width of the enamel at base . . . . .	5·5
Greatest width of root . . . . .	5·6
Length of root . . . . .	10·0

In addition to the specimen described above are two frag-

\* Pilgrim (Rec. Geol. Surv. India, vol. xxxvii. part 2, pl. iv.) has figured and described two such teeth as the upper incisors of *Bugitherium*.

ments of mandibular symphyses which belong in all probability to the same species. One of these fragments, as far as it goes, shows no great difference from the type; the other,

Fig. 1 a.

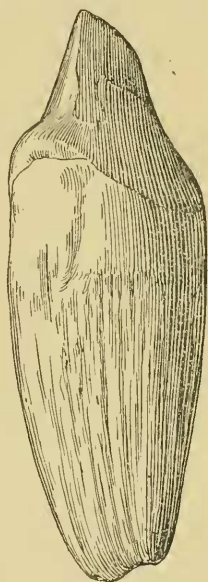


Fig. 1 b.

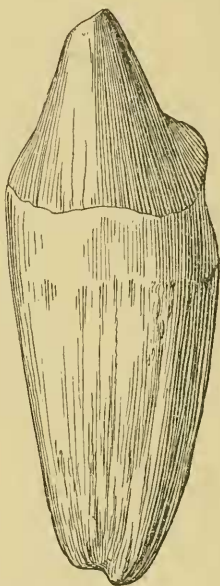
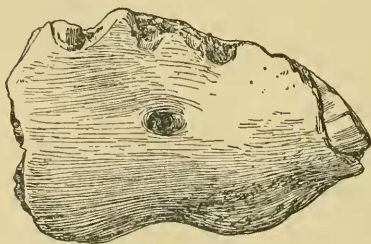


Fig. 1 a.—Inner surface of incisor.

Fig. 1 b.—Under surface of incisor.

Fig. 2.

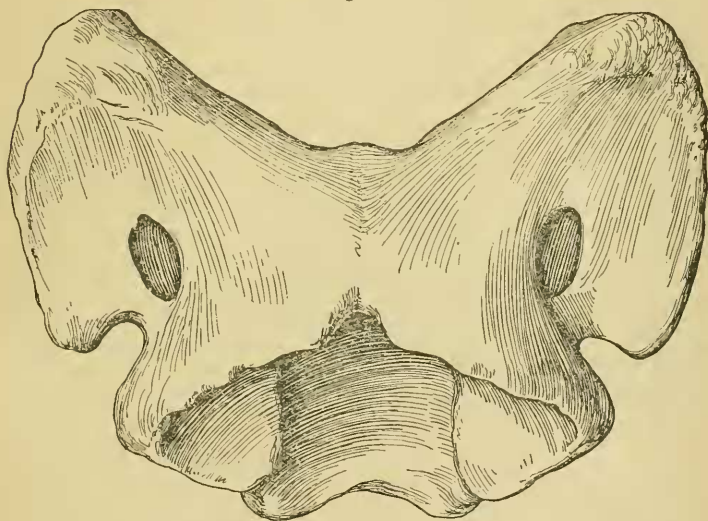
Portion of ramus attributed to *P. bugtiense*.

however, a symphysis, together with the roots of the two incisors and sockets for some of the premolars, differs in having a swelling in the central line on the underside of the

ramus just beyond the level of the mental foramen at a point where there is a slight concavity in the type (fig. 2). The diameter of the roots of the incisors is rather larger than in those of the type, and it is possible that this fragment belongs to a larger male of the same species—at any rate, it is best to refer it here until further material proves the contrary.

From the same locality come certain vertebræ and foot-bones which are provisionally referred to this species. Among them is chiefly noticeable an atlas (fig. 3) of extraordinary size, far too large for the specimen described above,

Fig. 3.



Atlas, upper surface.

but possibly belonging to a very large male, since the type is supposed to be a female. The measurements of this bone are as follows, and the measurements of an atlas of *R. bicornis* are given for comparison:—

	<i>P. bugtiense.</i>	<i>R. bicornis.</i>
	cm.	cm.
Extreme width from wing to wing . . . .	47·5	28·5
Depth of wing . . . . .	24·0	11·0
Extreme width of condylar surface . . . .	27·4	13·7

The edges of the wings are much roughened for the attachment of muscles. The vertebrararterial canal is similar to that

of *Rhinoceros*, but at the front end of the wing on the under side is a large foramen leading into a wide and deep cavity. This space communicates with the exterior by a large foramen on the hinder part of the upper border of the wing. The vessel occupying this cavity ran over a deep notch in the front of the wing. In *R. bicornis* this notch is represented by a foramen confluent with the upper foramen of the vertebrarterial canal, while the hinder foramen is represented by a small foramen on one wing and a very small and almost obsolete one on the other. The object of the large cavity so slightly represented in *R. bicornis* was probably to secure lightness in an unusually heavy bone.

Another large cervical vertebra was found equalling the atlas in size; also a large astragalus of *Perissodactyl* type and several other foot-bones. These will be described later on, when it is hoped further material will be forthcoming.

Two fragmentary skulls from the same locality may be noticed here, one of them with the series of premolars and molars complete. They seem to be referable to *Aceratherium bugtiense*, Pilgrim (*loc. cit.*). Seeing, however, that fragments of skulls and upper teeth of this form are fairly common, while, except for the lower jaw just described, nothing of corresponding size has so far been found, it seems possible that they are the upper and lower parts of the skull of one species. Of the many foot-bones collected there is a large gap in size between those of various species of ordinary sized *Rhinocerotidæ* and a single large and heavy form to which all these numerous fragments belong.

#### EXPLANATION OF PLATE X.

Fig. 1. *Paraceratherium bugtiense*. Right half of ramus.

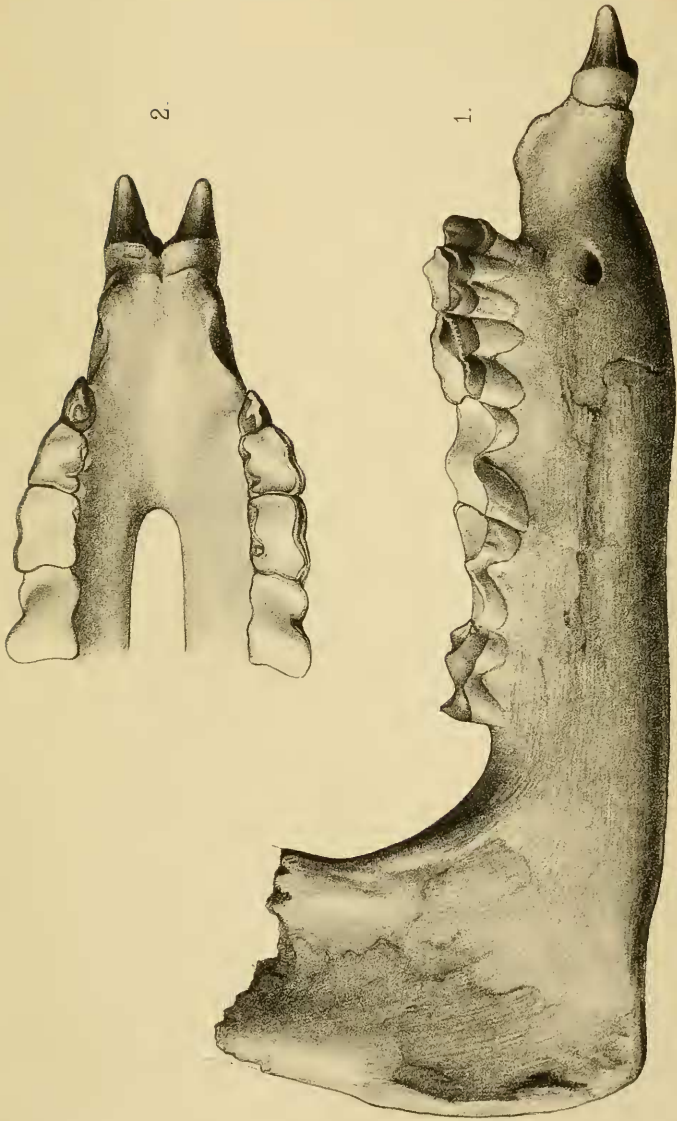
Fig. 2. Ditto. Upper surface of front portion of ramus.

LXXIX.—*Descriptions of some new Species of Heterocera, mostly from Tropical South America.* By HERBERT DRUCE, F.L.S. &c.

#### Fam. Syntomidæ.

##### *Homæocera watkinsi*, sp. n.

*Male*.—Head and antennæ black; collar white; tegulæ and thorax black, the base of the thorax white; abdomen metallic green, four yellowish-white spots on both sides of



G.M.Woodward del. et lith.

1. *Paraceratherium bugtiense*. Right half of ramus.

2. " " Upper surface of front portion of ramus.

West, Newman imp.